



Michael O. Leavitt  
Governor  
Dianne R. Nielson, Ph.D.  
Executive Director  
Don A. Ostler, P.E.  
Director

STATE OF UTAH  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
DIVISION OF WATER QUALITY

288 North 1460 West  
P.O. Box 144870  
Salt Lake City, Utah 84114-4870  
(801) 538-6146  
(801) 538-6016 Fax  
(801) 536-4414 T.D.D.  
www.deq.state.ut.us Web

RECEIVED

FEB 08 2000

DIVISION OF  
OIL, GAS AND MINING

Water Quality Board  
Leroy H. Wullstein, Ph.D.  
Chairman

K.C. Shaw, P.E.  
Vice Chairman

Robert G. Adams  
Nan Bunker

Ray M. Child, C.P.A.

John R. Cushing, Mayor

Dianne R. Nielson, Ph.D.

Ronald C. Sims, Ph.D.

Douglas E. Thompson, Mayor

J. Ann Wechsler

William R. Williams

Don A. Ostler, P.E.  
Executive Secretary

February 3, 2000

Mr. Greg E. Smith  
Tintic Utah Metals LLC  
15988 Silver Pass Rd.  
P.O. Box 51  
Eureka, UT 84628

Dear Mr. Smith:

Subject: Ground Water Discharge Permit Application

I have reviewed Tintic Utah Metals' permit application for dry-stack tailings disposal and a process water pond at the Burgin Mine near Eureka, Utah. According to the proposal, process water for the milling operation will consist of equal proportions of geothermal water from deep in the Burgin Mine and spring water. The resulting mixture is predicted to have total dissolved solids (TDS) content around 3000 mg/l. The process water will also contain reagents used for floatation and settling, and may possibly pick up additional constituents from being in contact with the processed ore.

Under this proposal, tailings with about 15-20% water content by weight would be stacked on subsoil and later reclaimed by covering with topsoil. Process water from the milling operation would be contained in an existing clay-lined pond. The liner material revealed a saturated hydraulic conductivity of  $3 \times 10^{-6}$  cm/sec when tested.

The permit application does not propose any additional containment for the process water because it argues that any process water discharged to the subsurface would percolate to the geothermal aquifer encountered in the Burgin Mine workings, at a depth of about 1000 feet below the land surface. This water is of poor quality with TDS content around 7000 mg/l, making it a Class III ground water.

Two reports in our files, the East Tintic District Mine Water Disposal Information Document by Chief Consolidated Mining Company and the Class V Injection Well Permit Application by Tintic Utah Metals indicate that there is a zone of perched ground water in the Tertiary volcanic rocks in the East Tintic District. Water quality in this zone is reported to be in the range of 350 to 600 mg/l, and potable water has been obtained from this source. This zone was reported in 1965 as having been encountered 100 to 300 feet below ground surface at the Burgin No. 1 shaft, within a few hundred feet of the proposed process water pond and tailings disposal site.

Regulation of these facilities under UAC R317-6 will be based on potential effects to this perched ground water. Unless you can conclusively demonstrate that discharges from the process water pond and tailings will not degrade water quality in the perched zone, a ground water discharge permit will be required for

February 3, 2000

Page 2

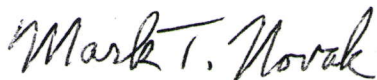
operation of these facilities. In a phone conversation, your consultant has suggested that the perched zone may not exist in the vicinity of the proposed facilities because it has drained down the Burgin No. 1 shaft. If this is the case, and it can be shown that discharges from the facilities will migrate to the deep geothermal aquifer, construction of the facilities as you propose in your permit application should not cause degradation of ground water resources, and your proposal would be acceptable as is. However, these assertions would need to be proven for us to approve the proposal. Before considering this course to demonstrate compliance, you should evaluate the costs of investigations needed to prove this assertion and the possibility that the investigations may not produce the desired results.

Otherwise, there are other possible scenarios for using these facilities in compliance with the regulations:

1. Compliance monitoring as a permit condition to demonstrate that ground water is not being contaminated. This would involve constructing monitor wells into the uppermost saturated zone which underlies both the tailings disposal area and the process water ponds. Wells must be positioned to evaluate ground water quality both upgradient and downgradient of the permitted facilities, and to confirm ground water flow directions. If you choose this option you should carefully evaluate the possibility that discharge from the permitted facilities may cause an out-of-compliance situation. You may wish to propose better containment for the process water if there is a possibility of this happening.
2. Construction and operation of the facilities in such a way that there is no discharge or discharge is brought to minimal levels which would not affect ground water quality in the perched zone.
3. Use of good-quality water for process water, so the resulting discharge would be compatible with the receiving ground water.

We could also consider other options or combinations of options which meet the goal of no ground water contamination. Any option where water is discharged that is not of a quality compatible with the receiving ground water will require a ground water discharge permit. Please contact me if you have any questions.

Sincerely,



Mark Novak, Environmental Scientist  
Ground Water Protection Section

MN:sal

cc: Central Utah Health Dept.  
Wayne Hedberg, DOGM  
Lyle Stott  
Gerald Jackson